

A redescription of the lungfish *Eoetenodus* Hills 1929, with reassessment of other Australian records of the genus *Dipterus* Sedgwick & Murchison 1828.

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Abstract

Eoetenodus microsoma Hills 1929 (= *Dipterus microsoma* Hills, 1931) from the Frasnian Blue Range Formation, near Taggerty, Victoria, is found to be a valid genus, differing from *Dipterus*, and other dipnoans, by the shape of the parasphenoid and toothplates. The upper jaw toothplates and entopterygoids, parasphenoid, cleithrum, anocleithrum and scales of *Eoetenodus* are described. *Eoetenodus* may represent the earliest member of the Ctenodontidae. *Dipterus* cf. *D. digitatus*, from the Late Devonian Gneudna Formation, Western Australia (Seddon, 1969), is assigned to *Chirodipterus australis* Miles 1977; and *Dipterus* sp. from the Late Devonian of Gingham Gap, New South Wales (Hills, 1936) is thought to be congeneric with a dipnoan of similar age from the Hunter Siltstone, New South Wales. This form differs from *Dipterus* in the shape of the parasphenoid. The genus *Dipterus* appears to be restricted to the Middle-Upper Devonian of Europe, North America and the USSR (Laurasia).

Introduction

Although Hills (1929) recognised a new dipnoan, *Eoetenodus microsoma*, in the Late Devonian fish remains from the Blue Range Formation, near Taggerty, he later (Hills 1931) altered the generic status of this species after a study trip to Britain in which D.M.S. Watson pointed out similarities between the Australian form and the British genus *Dipterus* Sedgwick and Murchison 1828. Studies of the head of *Dipterus* by Westoll (1949) and White (1965) showed the structure of the palate and, in particular, the shape of the parasphenoid which differs from that in the Taggerty dipnoan. These works, together with new discoveries of Upper Devonian dipnoans from Victoria at Mt Howitt, have prompted a re-examination of Hill's original material of *Eoetenodus*. The aim of this paper is to redescribe *Eoetenodus* and clarify the generic status of the other Australian Devonian dipnoans which have been referred to the genus *Dipterus*.

Australia has a particularly good record of fossil dipnoans from the Devonian, including superb specimens of Early Devonian dipnorhynchids from Taemas, New South Wales (Thomson and Campbell 1971, Campbell and Barwick, 1983, 1984, 1985), and good representation in both marine and terrestrial facies of the Late Devonian. The best preserved fossil lungfish material comes from the Frasnian

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